AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

NCR Docket No. 8907

Application of:

LEE, Y.

Group Art Unit: 3623

Serial No. 09/782,149

Examiner: Peter Choi

Filed: February 14, 2001

For: COMPUTER IMPLEMENTED CUSTOMER VALUE MODEL IN AIRLINE INDUSTRY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF TRANSMITTAL LETTER

Sir:

Transmitted herewith for filing is an Appeal Brief to the Final Rejection dated July 12, 2005.

☒ Please charge Deposit Account No. 14 0225 for the Appeal Brief fee or any other fees associated with the filing of said Appeal Brief.

☒ Please charge any additional fees to the account of NCR Corporation, Deposit Account No. 14 0225.

Respectfully submitted,

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CERTIFICATION OF MAILING UNDER 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 2/8/06.

By: Michelle George
Name: Michelle George

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Yung-Seop Lee	§	Group Art Unit:	3623
Serial No.:	09/782,149	§	Examiner:	Peter H. Choi
Filed:	February 14, 2001	§		
For:	COMPUTER IMPLEMENTED CUSTOMER VALUE MODEL IN AIRLINE INDUSTRY	§	Atty. Dkt. No.:	8907 (NCR)

Mail Stop: Appeal Brief
Commissioner for Patents
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Alexandria, VA 22313-1450

BRIEF IN SUPPORT OF APPEAL

This is a brief in support of Applicant's appeal filed on November 14, 2005, in response to the final rejection dated July 12, 2005, in this matter. Applicant is filing this brief along with the required fee.

CERTIFICATION OF MAILING UNDER 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on 2/8/06.

By: Michelle George
Name: Michelle George

(1) REAL PARTY IN INTEREST

The real party in interest in this matter is NCR Corporation, Dayton, Ohio, by virtue of an assignment recorded at reel 015318, frame 0060-0062, on February 14, 2001.

(2) RELATED APPEALS AND INTERFERENCES

Applicant is aware of no active appeals or interferences related to this application.

(3) STATUS OF CLAIMS

Claims 1-13 are currently pending. All of these claims are subject to a final rejection and are under appeal. The claims stand as originally submitted. The text of the claims, as currently pending, is attached as an appendix to this brief.

(4) STATUS OF AMENDMENTS

On November 14, 2005, Applicant filed a notice of appeal with a pre-appeal brief in reply to the final rejection dated July 12, 2005. In a Notice of Panel Decision from Pre-Appeal Brief Review mailed 11/23/2005, the Office rejected Applicant's arguments and maintained the rejection.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 recites a computer implemented method of evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value (e.g., page 7, lines 9-20; Fig. 2, element 200), the method comprising: (a) first assigning a discretized attribute score for each of the attribute values (e.g., page 9, line 6; Fig. 3, step 34); (b) first sorting the plurality of records in to an order based on the assigned discretized attribute scores associated with the first attribute (e.g., page 10, lines 4-6; Fig. 3, element 36); (c) second sorting the plurality of records in to an order based on the assigned discretized attribute scores associated with the second attribute (e.g., page 10, lines 6-8; Fig. 3, element 38); (d) third sorting the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first

attribute or the second attribute, have been sorted to different ranks (e.g., page 10, line 21 - page 11, line 2; Fig. 3, elements 40-48); and (e) second assigning an evaluation score to each record which has been sorted (e.g., page 11, line 25 - page 12, line 2; Fig. 3, element 52).

Independent claim 10 recites a computer implemented method of evaluating customers in the airline industry in a given period (e.g., page 5, lines 6-12), the method comprising: (a) obtaining records of each customer' contribution factors with associated values, the contribution factors including at least net revenue and number of flights (e.g., page 7, lines 21-29); (b) first assigning a discretized score for each of the associated values (e.g., page 9, line 6; Fig. 3, step 34); (c) first sorting the records in order based on the assigned discretized scores associated with the net revenue (e.g., page 10, lines 4-6; Fig. 3, element 36); (d) second sorting the records in order based on the assigned discretized scores associated with the number of flights (e.g., page 10, lines 6-8; Fig. 3, element 38); (e) third sorting the records in order based on the associated values associated with at least the net revenue and the number of flights, until records, which have different associated values associated with at least the net revenue or the number of flights, have been sorted to different ranks (e.g., page 10, line 21 - page 11, line 2; Fig. 3, elements 40-48); and (f) second assigning an evaluation score to each record which has been sorted (e.g., page 11, line 25 - page 12, line 2; Fig. 3, element 52).

Independent claim 11 recites a computer architecture for evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer architecture comprising (e.g., page 3, lines 11-19): (a) means for first assigning a discretized attribute score for each of the attribute values (e.g., page 9, line 6; Fig. 3, step 34); (b) means for first sorting the plurality of records in order based on the assigned discretized attribute scores associated with the first attribute (e.g., page 10, lines 4-6; Fig. 3, element 36); (c) means for second sorting the plurality of records in order based on the assigned discretized attribute scores associated with the second attribute (e.g., page 10, lines 6-8; Fig. 3, element 38); (d) means for third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the

first attribute or the second attribute, have been sorted to different ranks (e.g., page 10, line 21 - page 11, line 2; Fig. 3, elements 40-48); and (e) means for second assigning an evaluation score to each record which has been sorted (e.g., page 11, line 25 - page 12, line 2; Fig. 3, element 52).

Independent claim 12 recites a computer system for evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer system comprising (e.g., page 5, lines 13-15; Fig. 1, all elements): a processor (e.g., page 5, lines 16-18; Fig. 1, element 104); and a memory coupled to the processor, the memory having stored therein sequences of instructions, which, when executed by the processor, cause the processor to perform the steps of (e.g., page 5, lines 18-20; Fig. 1, element 106, 102, and 104): (a) first assigning a discretized attribute score for each of the attribute values (e.g., page 9, line 6; Fig. 3, step 34); (b) first sorting the plurality of records in order based on the assigned discretized attribute scores associated with the first attribute (e.g., page 10, lines 4-6; Fig. 3, element 36); (c) second sorting the plurality of records in order based on the assigned discretized attribute scores associated with the second attribute (e.g., page 10, lines 6-8; Fig. 3, element 38); (d) third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (e.g., page 10, line 21 - page 11, line 2; Fig. 3, elements 40-48); and (e) second assigning an evaluation score to each record which has been sorted (e.g., page 11, line 25 - page 12, line 2; Fig. 3, element 52).

Independent claim 13 recites an article, for use in evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the article comprising (e.g., page 4, lines 1-3): at least one sequence of machine readable instructions in machine readable form (e.g., page 4, lines 3-4), wherein execution of the instructions by one or more processors causes the one or more processors to perform the steps of (e.g., page 4, lines 4-6): (a) first assigning a discretized attribute score for each of the attribute values (e.g., page 9, line 6; Fig. 3, step 34); (b) first sorting the plurality of

records in order based on the assigned discretized attribute scores associated with the first attribute (e.g., page 10, lines 4-6; Fig. 3, element 36); (c) second sorting the plurality of records in order based on the assigned discretized attribute scores associated with the second attribute (e.g., page 10, lines 6-8; Fig. 3, element 38); (d) third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (e.g., page 10, line 21 - page 11, line 2; Fig. 3, elements 40-48); and (e) second assigning an evaluation score to each record which has been sorted (e.g., page 11, line 25 - page 12, line 2; Fig. 3, element 52).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claim 1 stands rejected under 35 USC § 102(b) as being anticipated by "Quick Profits with RFM Analysis" by Arthur Hughes (hereafter Reference A).

B. Claim 10 stands rejected under 35 USC § 103(a) as being unpatentable over Reference A.

C. Claims 11-13 stand rejected under 35 USC § 103(a) as being unpatentable over Reference A in view of the Database Marketing Institute's RFM for Windows® Guide (hereafter Reference B).

(7) ARGUMENT

All rejected claims should be allowed over the cited reference for the reasons set forth below.

A. The 102 Rejection of Independent Claims 1 by Reference A

Applicant requires a "third sorting [of] the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been stored to different ranks." The Office asserts that this is taught in paragraph 10 of Reference A. Applicant respectfully disagrees. Reference A teaches a method of ranking customers based on assigning three discretized

attribute scores to each customer. Each of the three scores has a range from 1 to 5 so there exist 125 possible combinations of scores. Each of the possible 125 combinations is referred to as an "RFM cell." Reference A further teaches that each customer is assigned a discretized value for each of the three scores and that all customers having identical discretized values for all three scores are said be ranked in the same RFM cell. (The Office asserts that Applicant's ranks are equivalent to Reference A's "RFM cells".) Once customers are assigned scores and ranked together, based **solely on their discretized attribute scores,** no additional refinement or sorting is made to the order of the customers within an RFM cell. Applicant on the other hand, requires a third sorting, not based on a discretized attribute scores but instead based on at least the first and second actual attribute values and not the discretized attribute scores. This third sorting occurs after sortings based on discretized attribute scores have been completed. The paragraph cited by the Office teaches the retrieval of less than all the customers records from the database. The paragraph states "a marketer ... segment[ed] a database with 1 million names into 125 RFM cells ... [and] selected 30,000 records for a test promotion." The selection of records simply does not require or imply the need to reorder, with a sort, the records contained within each rank or RFM cell. In fact, it does not require a sort at all. Applicant's third sorting of the records is simply not shown or suggested by Reference A.

Additionally, it is respectfully submitted that Reference A does not show or suggest "assigning an evaluation score to each record which has been sorted," as required by Applicant. The Office asserts that paragraph 10 teaches these elements. Applicant respectfully disagrees. Reference A only teaches the assigning of three discretized attribute scores that together have 125 possible combinations, as shown above. Nowhere does Reference A show or suggest an assignment of an evaluation score that is in addition to the assignment of discretized attribute scores. Furthermore, the Office supports Applicant's position on page 12, paragraph 3 of the Office Action mailed 7/12/2005, by stating "Reference A fails to explicitly disclose an assigned evaluation score to records ...." It is clear from the above argument and from the Office's own statement that this element is missing from Reference A.

Reference A is clearly missing at least the above elements that are required by Applicant's claims. It is respectfully submitted that the reference fails to anticipate all the elements of Applicant's claim. Therefore, the rejection of claim 1 is improper and should be reversed by the Board.

B. The 103 Rejection of Independent Claim 10 over Reference A

Applicant requires a "third sorting [of] the records in order based on the associated values associated with at least the net revenue and the number of flights, until records, which have different associated values associated with at least the net revenue or the number of flights, have been sorted to different ranks." The Office asserts that this is taught in paragraph 10 of Reference A. Applicant respectfully disagrees. As shown above for claim 1, Reference A does not show or suggest performing a third sort on the attribute values (in this claim, the attribute values are the net revenue and the number of flights) after sorting on the discretized attribute score. Furthermore, there is nothing in the teachings of Reference A that would have suggested or motivated a person of ordinary skill in the art to perform such a sort. Applicant's third sorting of the records, as required by claim 10, is not shown or suggested by Reference A.

Additionally, as show above for claim 1, it is respectfully submitted that Reference A does not show or suggest "assigning an evaluation score to each record which has been sorted," as required by Applicant. As also shown above, the Office agrees with this position by stating in paragraph 3 on page 12 of the Office Action that "Reference A fails to explicitly disclose an assigned evaluation score to records ...." Therefore, this element is also missing from Reference A.

Reference A is missing at least the elements described above. A prima facie case of obviousness can therefore not be established with respect to Reference A because Reference A does not show or suggest all the elements of claim 10. It is respectfully submitted that this rejection is improper and should be reversed by the Board.

C. The 103 Rejection of Independent Claims 11-13 over Reference A in View of Reference B.

Applicant requires a "third sorting [of] the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which different attribute values associated with at least the first attribute or the second attribute, have been stored to different ranks." The Office asserts that this is taught in paragraph 10 of Reference A. Applicant respectfully disagrees. As shown above for claim 1, Reference A does not show or suggest performing a third sort on the attribute values (in this claim, the attribute values are the net revenue and the number of flights) after sorting on the discretized attribute score. Furthermore, there is nothing in the teachings of Reference A that would have suggested or motivated a person of ordinary skill in the art to perform such a sort. Applicant's third sorting of the records, as required by claims 11-13, is not shown or suggested by Reference A.

Additionally, as show in the above argument for claim 1, it is respectfully submitted that Reference A does not show or suggest "assigning an evaluation score to each record which has been sorted," as required by Applicant. This element is also missing from Reference A.

Reference B teaches the invention of Reference A, implemented in a Windows® environment. Since Reference A does not contain the above missing elements, the implementation of Reference A in a Windows® environment does not contain the above missing elements.

Reference A and Reference B are missing at least the elements described above. A prima facie case of obviousness can therefore not be established with respect to Reference A separately or in combination with Reference B because these references does not show or suggest all the elements of the claims. It is respectfully submitted that the rejection of claims 11-13 is improper and should be reversed by the Board.

D. Conclusion

Since all elements of Applicant's claim must be found either expressly or inherently in the reference for a proper 102 rejection and since Applicant has shown that at least the above elements are missing from the reference, Reference A does not anticipate Applicant's claim. Therefore, the rejection of claim 1 is improper. Likewise, the *prima facie* case of obviousness for claims 10, 11, 12, and 13 has not been established. Therefore, Applicant asks the Board to reverse the examiner's rejections and to allow all of the claims.

Please apply any charges or credits that might be due, except the issue fee, to the NCR Corporation deposit account number 14-0225.

Respectfully submitted,

Date: Feb. 8, 2006

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APPENDIX A - Current Listing of Claims

1. (original) A computer implemented method of evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the method comprising:

   a) first assigning a discretized attribute score for each of the attribute values;

   b) first sorting the plurality of records in to an order based on the assigned discretized attribute scores associated with the first attribute;

   c) second sorting the plurality of records in to an order based on the assigned discretized attribute scores associated with the second attribute;

   d) third sorting the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks; and

   e) second assigning an evaluation score to each record which has been sorted.

2. (original) The method of claim 1, wherein step (a) includes the steps of:

   (i) breaking the plurality of records into a number of groups based on the attribute values; and

   (ii) for records of each group, assigning a discretized attribute score for the attribute values.

3. (original) The method of claim 2, further including the step of sorting the plurality of records in the order based on the attribute values associated with one of at least the first attribute and the second attribute.

4. (original) The method of claim 1, wherein step (a) includes the steps of:

(i) breaking the plurality of records into quartiles based on the attribute values associated with one of at least the first attribute and the second attribute; and

(ii) for records of each quartile, assigning one of the scores of 1, 2, 3, and 4 for the attribute values associated with the one of at least the first attribute and the second attribute.

5. (original) The method of claim 1, wherein step (e) includes the steps of:

(i) splitting the records, which have been sorted, into a number of groups; and

(ii) assigning an evaluation score for records of each group.

6. (original) The method of claim 1, wherein step (e) includes the steps of:

(i) splitting the records, which have been sorted, into 100 groups; and

(ii) assigning an evaluation score of between 1 and 100 for records of each group.

7. (original) The method of claim 1, wherein step (d) is performed until records, which have same assigned discretized attribute scores but different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

8. (original) The method of claim 7, further including the steps of fourth sorting the plurality of records in the order based on the attribute values associated with the first attribute.

9. (original) The method of claim 8, further including the steps of fifth sorting the plurality of records in the order based on the attribute values associated with the second attribute.

10. (original) A computer implemented method of evaluating customers in the airline industry in a given period, the method comprising:

a) obtaining records of each customer' contribution factors with associated values, the contribution factors including at least net revenue and number of flights;

b) first assigning a discretized score for each of the associated values;

c) first sorting the records in order based on the assigned discretized scores associated with the net revenue;

d) second sorting the records in order based on the assigned discretized scores associated with the number of flights;

e) third sorting the records in order based on the associated values associated with at least the net revenue and the number of flights, until records, which have different associated values associated with at least the net revenue or the number of flights, have been sorted to different ranks; and

f) second assigning an evaluation score to each record which has been sorted.

11. (original) A computer architecture for evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer architecture comprising:

a) means for first assigning a discretized attribute score for each of the attribute values;

b) means for first sorting the plurality of records in order based on the assigned discretized attribute scores associated with the first attribute;

c) means for second sorting the plurality of records in order based on the assigned discretized attribute scores associated with the second attribute;

d) means for third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks; and

e) means for second assigning an evaluation score to each record which has been sorted.

12. (original) A computer system for evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer system comprising:

a processor; and

a memory coupled to the processor, the memory having stored therein sequences of instructions, which, when executed by the processor, cause the processor to perform the steps of:

first assigning a discretized attribute score for each of the attribute values;

first sorting the plurality of records in order based on the assigned discretized attribute scores associated with the first attribute;

second sorting the plurality of records in order based on the assigned discretized attribute scores associated with the second attribute;

third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks; and

second assigning an evaluation score to each record which has been sorted.

13. (original) An article, for use in evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the article comprising:

at least one sequence of machine readable instructions in machine readable form,

wherein execution of the instructions by one or more processors causes the one or more processors to perform the steps of:

first assigning a discretized attribute score for each of the attribute values;

first sorting the plurality of records in order based on the assigned discretized attribute scores associated with the first attribute;

second sorting the plurality of records in order based on the assigned discretized attribute scores associated with the second attribute;

third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks; and

second assigning an evaluation score to each record which has been sorted.